



RAILROAD COMMISSION OF TEXAS

SURFACE MINING AND RECLAMATION DIVISION

October 5, 2012

Sent by Email and First-Class Mail

Mr. Tommy Hodges
Energy Manager
Alcoa, Inc. (Alcoa)
P. O. Box 1491
Rockdale, Texas 76567-1491

RE: Sandow Mine, Permit No. 1F
Response to Conditional Approval of Revision Nos. 29, 30 and 31

Dear Mr. Hodges:

Review of your response to conditional approval of Revision Nos. 29 through 31, submitted by letter dated July 26, 2012, has been completed. Revision Nos. 29 through 31 were conditionally approved by letter dated July 24, 2012.

Revision No. 31 included the revised bond maps Drawing Nos. 145-B1, *North Area Proposed Bond Map*, and 145-B2 *South Area Proposed Bond Map*, submitted by letter dated June 1, 2012 (dated revised May 23, 2011). The bond maps were approved, provided that Alcoa submit revised bond maps that clearly distinguish between the Phase I (mined rate) and Phase I (disturbed rate) areas. The revised maps were also to include hatching that clearly identifies Phase III bond release areas since most are surrounded by bonded areas.

Alcoa provided revised bond maps Drawing Nos. 145-B1, *North Area Proposed Bond Map*, and 145-B2, *South Area Proposed Bond Map*, dated July 23, 2012. The bond maps clearly distinguish between Phase I (mined rate) and Phase I (disturbed rate) areas. Although still difficult to easily discern, the Phase III release areas are identified with grey solid hatch. The revised bond maps (dated July 23, 2012) adequately address the conditional approval of Revision No. 29 through 31 and are acknowledged.

If you have any questions, please do not hesitate to call me or Israr Anwar, reviewer of your submittal.

Sincerely,

A handwritten signature in black ink that reads "John E. Caudle".

John E. Caudle, Director
Surface Mining and Reclamation Division

JEC/TLW/ecd
File Ref. No. 1220901



Alcoa Primary Metals

Energy Division-Sandow Mine
3990 John D. Harper Road
PO Box 1491
Rockdale, TX 76567-1491 USA

July 26, 2012

Railroad Commission
of Texas
RECEIVED

JUL 27 2012

Mr. John E. Caudle, P.E., Director
Surface Mining and Reclamation Division
Railroad Commission of Texas
P.O. Box 12967
Austin, Texas 78711-2967

Surface Mining Division

**Re: Sandow Permit 1F
Revision No. 29, 30 and 31
Response to Comments
File Reference Nos. 1205510, 1206901, 1212507**

Dear Mr. Caudle:

Alcoa Inc., Sandow Mine received your letter dated July 24, 2012 regarding Alcoa's Revisions 29, 30 and 31. You requested that Alcoa provide revised bond maps that clearly show the difference between Phase 1 Mined Rate and Phase 1 Disturbed Rate bonding, along with areas that have received Phase III release. Three copies (3) of Drawing Numbers 145-B1 and 145-B2 are provided with this letter.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

Tommy E. Hodges

Tommy E. Hodges
Energy Manager

SANDOW MINE

ROCKDALE, TEXAS

NORTH AREA PROPOSED BOND MAP

PERMIT NO. 1F

Alcoa Inc.

PPROVAL DH	DATE 7/23/2012	FILE NO. 2012 PROPOSED BOND MAPS	DWG. NO. 145-B1
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SANDOW MINE

ROCKDALE, TEXAS

SOUTH AREA PROPOSED BOND MAP

PERMIT NO. 1F

Alcoa Inc.

APPROVAL

DH

DATE

7/23/2012

FILE NO.

2012 PROPOSED BOND MAPS

DWG. NO.

145-B2



RAILROAD COMMISSION OF TEXAS

SURFACE MINING AND RECLAMATION DIVISION

July 24, 2012

Sent by Email and First-Class Mail

Mr. Tommy Hodges
Energy Manager
Alcoa, Inc. (Alcoa)
P. O. Box 1491
Rockdale, Texas 76567-1491

RE: Sandow Mine, Permit No. 1F
Revision No. 29 - Incidental Boundary Revision (IBR)
Revision No. 30 - Postmine Land Use Plan Revision
Revision No. 31 - Bond Map Revision ✓

Dear Mr. Hodges:

Review of Revision Nos. 29 through 31, submitted by letters dated February 22, 2012, March 5, 2012, and May 4, 2012, respectively, has been completed. Revision No. 29, which includes a request for approval of a 1.67-acre IBR was supplemented by letters dated April 9, 2012, and May 4, 2012, in response to Staff technical comments dated March 15, 2012, and April 26, 2012, respectively. Revision No. 30 includes proposed changes to the postmine land use plan and was supplemented by letter dated May 4, 2012, in response to Staff technical comments dated May 3, 2012. Revision No. 31 includes revised bond maps and a revised reclamation cost estimate revision and was supplemented by letter dated June 1, 2012, in response to a comment letter dated May 25, 2012. A \$500 revision application-filing fee was included with the initial submittal for each application (total of \$1,500). The applications are considered complete and are accepted for filing.

Revision No. 29 includes a request to add 1.67 acres to the permit area to include areas of previous mining-related disturbance that were inadvertently removed from the permit area in Revision No. 17 (approved administratively by letter dated August 22, 2011). The addition of these 1.67 acres results in a new permit area of 10,730.27 acres. Necessary changes to the postmine land use plan and bond maps to address the IBR areas are contained in Revision Nos. 30 and 31.

Revision No. 30 includes a revised postmine land-use plan in section .147, on Plates 147-1 and 147-2 and in Table .147-1. The purpose of the land-use revision is to support the utilization of the C-Area Endlake as a water storage/make-up reservoir for Alcoa Lake, which provides cooling water for Sandow Units 4 and 5, Alcoa proposes to convert the C-Area Endlake and the areas surrounding the lake to industrial/commercial land use. The proposed postmine land use plan, as depicted on Plates 147-1 and 147-2, certified on May 1, 2012, meets the requirements of §§12.147 and 12.399.

In Revision No. 31, Alcoa requests to add approximately 463 acres of undisturbed area to the disturbed rate category. This area was inadvertently removed from the approved bond maps and reclamation cost estimate. This area is now shown on the proposed bond maps to be bonded (disturbed rate) and is accounted for in Staff's and Alcoa's revised reclamation cost estimate. The revised cost estimates also

take into account the release of reclamation liability approved by Commission Order dated November 8, 2011. The revised bonded areas are shown on Drawing Nos. 145-B1, *North Area Proposed Bond Map*, and 145-B2, *South Area Proposed Bond Map*, submitted by letter dated June 1, 2012 (dated revised May 23, 2011).

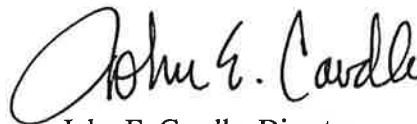
Staff has updated its reclamation cost estimate for the Sandow Mine to take into account the proposed bond map changes. The unit reclamation costs were taken from the Staff Reclamation Cost Analysis in Revision No. 17 (dated August 22, 2011). Staff's estimate shows that the revised cost of reclamation is \$43,669,725, which is less than Alcoa's estimate of \$45,818,746. Alcoa's higher reclamation cost estimate is adopted as the minimum required reclamation bond amount. Alcoa's \$56,000,000 self-bond approved by Order dated February 7, 2012, is sufficient to cover the cost of reclamation. You did not request reduction of the posted bond amount. The revised bond maps, Drawing Nos. 145-B1, *North Area Proposed Bond Map*, and 145-B2, *South Area Proposed Bond Map*, submitted by letter dated June 1, 2012 (dated revised May 23, 2012) are approved and your permit is revised accordingly.

The changes proposed in Revision Nos. 29 through 31 are revisions to the approved permit. I find that the applications do not constitute a significant departure from the reclamation plan approved in Permit No. 1F, in accordance with §12.226. The applicable portions of the Regulations have been met for each of the applications, as described above. Revision Nos. 29 through 31 are approved and your permit is revised accordingly, with the following condition:

- Within 30 days of this letter, revised bond maps (Dwg. Nos. 145-B1, *North Area Proposed Bond Map*, and 145-B2, *South Area Proposed Bond Map*) must be provided that clearly distinguish between Phase I (mined rate) and Phase I (disturbed rate) areas. The revised maps should also include hatching that clearly identifies Phase III bond release areas since most are surrounded by bonded areas.

Copies of the Staff review memoranda documenting our review of Revision Nos. 29 through 31 are attached. If you have any questions, please do not hesitate to call.

Sincerely,



John E. Caudle, Director
Surface Mining and Reclamation Division


JEC/TLW/ecd
Attachments
File Ref. No. 1205510, 1206901 and 1212507




RAILROAD COMMISSION OF TEXAS

SURFACE MINING AND RECLAMATION DIVISION

MEMORANDUM

TO: John E. Caudle, Director 

THRU: Stephanie Reed, Manager, Applications and Permits 
Tim Walter, P.G., Hydrogeologist

FROM: Israr Anwar, P.E., Engineer
Xiaoyan Dai, Ph. D., Natural Resources Specialist
Travis L. Wootton, Engineering Specialist

SUBJECT: Alcoa Inc. (Alcoa)
Sandow Mine, Permit No. 1F
Revision No. 29 - Incidental Boundary Revision (IBR)
Revision No. 30 - Postmine Land Use Plan Revision
Revision No. 31 - Bond Map Revision ✓

DATE: July 24, 2012

Alcoa submitted Revision No. 29, requesting approval of a 1-acre IBR, by letter dated February 22, 2012. Revision No. 29 was supplemented (including an increase in the IBR area to 1.67 acres) by letters dated April 9, 2012, and May 4, 2012, in response to Staff technical comments dated March 15, 2012, and April 26, 2012, respectively. Revision No. 30 includes proposed changes to the postmine land use plan and was submitted by letter dated March 5, 2012. Revision No. 30 was supplemented by letter dated May 4, 2012, in response to Staff technical comments dated May 3, 2012. Revision No. 31 by was submitted by letter dated May 4, 2012, which includes revised bond maps and a reclamation cost estimate revision for Permit No. 1F. Additional information for Revision No. 31 was submitted by letter dated June 1, 2012, in response to a comment letter dated May 25, 2012. The bond map revision corrects a recently discovered error to restore an area which was inadvertently removed from the bonded areas. A \$500 revision application-filing fee was included with the initial submittal for each application (total of \$1,500).

Because the changes proposed in Revision Nos. 29 through 31 are dependent upon one another, the applications were reviewed concurrently. Below is a summary of these applications and our technical review:

PROPOSAL SUMMARY

The changes proposed in Revision Nos. 29 through 31 include a 1.67-acre IBR, revised bond maps, a revised reclamation cost estimate and changes to the approved postmine land use plan, as follows:

Revision No. 29 - 1.67-Acre IBR

1. In the initial application, Alcoa proposed to add approximately one acre to the Permit No. 1F area. This area includes portions of a reclaimed dewatering well system that was erroneously removed from the permit area in Revision No. 17 (approved administratively by letter dated August 22, 2011).
2. In response to Staff technical comments dated March 15, 2012, Alcoa revised the IBR request in its April 9, 2012, supplement. Alcoa added a total of approximately 0.67 acre in the E2 and North F Areas to the proposed IBR area, increasing the proposed IBR area proposed in Revision No. 29 to 1.67 acres. The proposed IBR area is shown on Drawing Nos. 1 and 2, *Sandow Mine Permit No. 1F, Revision No. 29 1-Acre Incidental Boundary Revision Request*, contained in the April 9th supplement.
3. In its May 4, 2012, supplement, Alcoa indicates that it reviewed numerous archived aerial photographs to determine that the proposed IBR area adequately encompasses areas of previous disturbance in the E2 Area. A 50-foot radius is provided around each well site, along with travel corridors to each well. The May 4th supplement also contains copies of revised bond maps and postmine land use maps contained in Revision Nos. 30 and 31. The information provided in those separate applications is described below.

Revision No. 30 - Revised Postmine Land Use Plan

4. Alcoa provides in its May 4, 2012, supplemented section .147 a revised postmine land-use plan for the permit area in Table .147-1 and on Plates 147-1 and 147-2, *Postmine Land Use*, which contain depictions of the following proposed postmine land uses:

Land-Use Category	Premine (Acres)	Areal %	Postmine (Acres)	Areal %
Pastureland	3,287	33.2	7,555	76.3
Fish and Wildlife Habitat	0	0	388	3.9
Industrial/Commercial	1,141	11.5	1,106	11.2
Developed Water Resources	92	0.9	847	8.6
Cropland	12	0.1	0	0.0
Grazingland	4,491	45.4	0	0.0
Undeveloped	873	8.8	0	0.0
Totals	9,896	100.0	9,896	100.0

5. Plates 147-1 and 147-2, *Postmine Land Use Map*, contains depictions of the revised postmine land use. Dennis Wade Hill, a professional engineer licensed in the State of Texas, certified revised Plates 147-1 and 147-2 by his signature dated May 1, 2012. A map *Released Area Status by Land Use*, depicting the areas that have received Phase III release of reclamation liability, their land use categories and acreages is also provided in the supplement submitted by letter dated May 4, 2012.
6. Alcoa proposes to change the C-Area Endlake and the areas surrounding the lake to industrial/commercial land use. The purpose of the land-use revision is to support the utilization of the C-Area Endlake as a water storage/make-up reservoir for Alcoa Lake. Alcoa Lake is used to support the cooling water needs for Sandow Units 4 and 5. The areas surrounding C-Area Endlake will be utilized for the installation of pumping stations for moving water out of the reservoir or for the installation of industrial wells to provide makeup water to Alcoa Lake for eventual use as cooling water.

7. Alcoa has also updated the postmine land-use map on Plates 147-1 and 147-2 to include a corridor of disturbed area between the I-North and I-South mine blocks that was inadvertently omitted from the previously approved maps.

Revision No. 31 - Revised Bond Map and Reclamation Cost Estimate

8. Alcoa indicates that disturbed portions of the H, G, and F/G Areas were inadvertently considered as undisturbed, and were removed from the bond maps and its reclamation cost estimate. This error is corrected in the proposed bond maps revision. The proposed changes are delineated on the provided bond change maps: Dwg. Nos. 145-B3, *North Area Proposed Bond Map*, and 145-B4, *South Area Proposed Bond Map*, dated revised May 23, 2012. The new bonded areas are shown on the revised bond map: Dwg. Nos. 145-B1, *North Area Proposed Bond Map*, and 145-B2, *South Area Proposed Bond Map*, dated revised May 23, 2012.
9. Alcoa requests to add approximately 463 acres of undisturbed area, which was inadvertently removed from the bond, to the disturbed rate category. Alcoa also accounts for the most recently approved bond release (approved by Order dated November 8, 2011). The revised bond maps reflect Phase I, II and III bond-release areas approved as of the date of submittal of the application, as well as areas proposed for bonding.
10. The revised bond maps show a total of 4,495 acres bonded at the mined rate and 2,154 acres bonded at the disturbed rate. In addition, the revised bond maps also depict a total of 2,799 acres of land with Phase I bond release, 1,055 acres of land with Phase I and II bond release, and 18 acres of land with Phase I, II and III bond release. These areas are shown on Drawing. Nos. 145-B1 and 145-B2. Alcoa's revised reclamation cost estimate is \$45,818,746. Alcoa does not request a reduction of the approved self-bond instrument in the amount of \$56,000,000.

PROPOSAL EVALUATION

1. The proposed IBR (Revision No. 29), revised postmine land use plan (Revision No. 30), and bond maps (Revision No. 31), are revisions to the approved permit. Due to the interrelated nature of the changes proposed in these applications, Staff reviewed Revision Nos. 29 through 31 concurrently. Our review of the applications follows:

Revision No. 29 - 1.67-Acre IBR

2. Alcoa proposes to add a total of approximately 1.67 acres to the approved permit area (10,728.6 acres approved administratively in Revision No. 17 by letter dated August 22, 2011) to include areas previously disturbed by mining-related activities. Approximately one acre is associated with dewatering wells that were previously inadvertently removed from the permit area. In its April 9, 2012, supplement, Alcoa also proposes to add approximately 0.67 acres in the E2 and North F Areas to include areas of previous mining-related disturbance. The additional 0.67 acre was added to address concerns noted in Staff's Match 15, 2012, comments. If approved, the addition of these 1.67 acres will result in a new permit area of 10,730.27 acres.

3. According to the property ownership information in the approved permit, the proposed IBR areas are located on Tract Nos. 43, 56, 71, 210 and 223, all of which are owned by Alcoa.
4. The IBR areas are located in areas of previous mining-related disturbance. As such, they will not affect any new cultural resources sites. The IBR areas are not located within 100 feet of a cemetery or public road, as measured from the outside right-of way, and is more than 300 feet from any occupied dwelling.
5. The proposed IBR does not affect the geologic, hydrologic, and climatological information contained in Permit No. 1F. Similarly, Staff does not anticipate the need for changes to the approved fish and wildlife, threatened and endangered species, wetlands or soil baseline information in Permit No. 1F.
6. No mining is proposed in the IBR areas and the addition of these 1.67 acres to the permit area will not affect the approved reclamation plan.
7. No changes to the approved surface-water control plan are proposed and none are necessary.
8. The IBR includes areas that were not mined, but were previously disturbed by mining-related disturbance (dewatering wells, structure access, etc.). These areas were previously included in the permit area, but were inadvertently removed. Baseline information for these areas was previously provided and Staff's evaluation found the information to be adequate.
9. Changes to the postmine land use plan, bond map and reclamation cost estimate resulting from the proposed IBR are addressed in Revision Nos. 30 and 31 and are described below.

Revision No. 30 - Revised Postmine Land Use Plan

10. Alcoa's proposed plan in Table 147-1, compared to the January 27, 2012, approved postmine land use plan in Revision No. 15, and August 22, 2011, approved permit area reduction and bond map revision, includes the following changes:

Land-Use Category	Approved Revision No. 15 Postmine (Acres)	Proposed Revision No. 30 Postmine (Acres)	Differences (Acres)
Pastureland	8,337	7,555	-782
Fish and Wildlife Habitat	780	388	-392
Industrial/Commercial	728	1,106	378
Developed Water Resources	1,103	847	-256
Cropland	0	0	0
Grazingland	0	0	0
Undeveloped	0	0	0
Totals	10,948	9,896	-1052

In Revision No. 17, approved by letter dated August 22, 2011, Alcoa removed approximately 1,055 permit acres that were areas that had received Phase III release of reclamation liability. In this Revision No. 30, the total acreage removed from the areas that had received Phase III release of reclamation liability is 1,052 acres, as revised in the supplemental letter dated May 4, 2012. Alcoa explained in the May 4th letter that the discrepancy arose because some areas disturbed by mining were not included in Revision No. 15, but were included in Revision No. 17. In addition, a 1.67-acre disturbed area that was not included in the disturbed area in Revision No. 17 is being added back into

the disturbance boundary in Alcoa's Revision No. 29 (incidental boundary revision). Alcoa's explanation is acceptable.

11. Alcoa's proposed revision to the postmine land-use plan for the C-Area Endlake on Plate 147-2 occurs on land tracts owned by Alcoa, as identified on Plate 136-A2 in Permit No. 1F (Supplement No. 2).
12. The revised postmine land-use plan reflects the plan of the owner (Alcoa) for the affected property. This represents a higher land use achievable under §12.399(c) that is compatible with adjacent land uses. This plan will not present either actual or probable hazard to public health or safety. The proposed postmine land-use plan will not pose any actual or probable threat of water-flow diminution or pollution, nor will it involve unreasonable delays in reclamation. The proposed plan will not adversely affect fish and wildlife and related environmental values. Mr. Dennis Wade Hill, a licensed professional engineer licensed in the State of Texas, has certified the postmine land-use plans by his stamp and signature, dated May 1, 2012.
13. The area is not located within an area designated unsuitable for mining; is more than 100 feet from any cemetery; is located outside of the 300-foot buffer from the nearest school, church, public park, or occupied dwelling; and will have no effect on public road buffer zones. The revision does not affect any site that is listed, eligible, or undetermined to be eligible for listing on the National Register of Historic Places.
14. Alcoa does not propose to revise the bond for Permit No. 1F (\$56,000,000), approved February 7, 2012 (Docket No. C-12-0009-SC-01-E). Bond map revisions necessary as a result of the proposed revised postmine land-use plan are addressed in Revision No. 31.

Revision No. 31 - Revised Bond Map and Reclamation Cost Estimate

15. The bond change maps, Drawing Nos. 145-B3 and 145-B4, included in this application show the proposed bond category change areas. Alcoa requests an addition of approximately 463 acres of undisturbed area to the disturbed rate category. This 463-acre area was previously inadvertently removed from the approved bond maps and reclamation cost estimate. This error is corrected and the area is shown on the bond maps as being bonded at the disturbed rate. The revised bonded areas are accounted for in Alcoa's revised reclamation cost estimate. Staff notes that the bonding categories shown on the revised bond maps are difficult to distinguish in some areas. Specifically, it would be helpful if the Phase I bond release areas were shown in a manner that allows Staff to identify whether the areas were originally bonded at the mined or disturbed rate. Additionally, several small Phase III bond release areas are identified by a light gray hatch pattern. These areas are also difficult to see in some places because of a lack of contrast with surrounding areas.
16. The bond release areas shown on Drawing Nos. 145-B1 and 145-B2, submitted by letter dated June 1, 2012, are accurate and correspond with Commission Orders approving release of reclamation liability.
17. Staff's Table I "Summary of Estimated Reclamation Costs" for Revision No. 17 (approved administratively by letter dated August 22, 2011) is revised to reflect the proposed changes to areas bonded at various disturbance categories. The unit reclamation costs were taken from the Staff Reclamation Cost Analysis in Revision No. 17 (dated August 22, 2011). Revised Table I is provided as follows:

SUMMARY OF ESTIMATED RECLAMATION COSTS

Disturbance Category ¹	Cost per Acre	Acres ²	Estimated Cost
Mined Rate	\$5,457	4,495.0	\$24,529,215
Mined Phase I (60%) Reduction	\$2,183	2,493.0	\$5,442,219
Mined Phase II Reduction	\$814	1,044.0	\$849,816
Disturbed Rate	\$3,896	2,154.0	\$8,391,984
Disturbed Phase I (60%) Reduction	\$1,558	306.0	\$476,748
Disturbed Phase II Reduction	\$814	12.0	\$9,768
SUBTOTAL			\$39,699,750
ADMINISTRATIVE COST (10%)			\$3,969,975
TOTAL RECOMMENDED RECLAMATION BOND			\$43,669,725

¹ Mined Areas: Includes any area where spoil is deposited, the active pit, and any highwall reduction areas.

Disturbed Areas: Includes reclamation activities (such as clearing and grubbing, topsoil removal, etc.) associated with construction of sediment ponds, diversions, access roads, haul roads, and facilities where the area is not mined.

Ancillary Areas: Includes disturbance areas on which soil preparation and seeding are the only required reclamation activity.

² All acreage figures were taken from the revised bond maps, Drawing No. 145-B1, *North Area Proposed Bond Map*, and Drawing No. 145-B2, *South Area Proposed Bond Map*, dated revised May 23, 2012.

18. Staff's previous reclamation cost estimate of \$55,816,680 was approved administratively with Revision No. 17 on August 22, 2011. The decreased reclamation costs reflected in this memorandum are due to credit for recently approved Phase I and II release areas.

19. Alcoa has provided the information necessary to determine compliance with §§12.226, 12.142(2)(C), 12.145(b)(2), 12.304, and 12.307

CONCLUSIONS AND RECOMMENDATIONS

The proposed IBR (Revision No. 29), revised postmine land use plan (Revision No. 30), revised bond maps and reclamation cost estimate (Revision No. 31) are considered revisions to Permit No. 1F.

Revision No. 29 consists of a request to add 1.67 acres to the approved permit area, resulting in a new permit area of 10,730.27 acres. Necessary changes to the approved postmine land use plan and bond map

are addressed in Revision Nos. 30 and 31. Alcoa has provided sufficient information to demonstrate that it has demonstrated a right to enter the affected property tracts and changes to additional portions of the application are not needed. Based on our review, we recommend approval of Revision No. 29.

In Revision No. 30, Alcoa requests approval of its revised postmine land-use plan. The application is considered a revision to the approved reclamation plan. Revision No. 30 does not constitute a significant departure from the approved reclamation plan as described in §12.226, and Alcoa has provided the information necessary to demonstrate compliance with §§12.147 and 12.399. Based on our review, we recommend approval of Revision No. 30, with the following condition:

- Within 30 days of this letter, Alcoa should be required to provide revised bond maps (Dwg. Nos. 145-B1, *North Area Proposed Bond Map*, and 145-B2, *South Area Proposed Bond Map*, dated revised May 23, 2012) that clearly distinguish between Phase I (mined area) and Phase I (disturbed area) areas. The revised maps should also include hatching that clearly identifies Phase III bond release areas.

Revision No. 31 contains revised bond maps and a revised reclamation cost estimate. Staff's reclamation cost estimate shows that \$43,669,725 is necessary for reclamation of the mine in the event of forfeiture. We recommend that Alcoa's higher estimate in the amount of \$45,818,746, contained in Revision No. 31, be adopted as the minimum required reclamation bond amount. Alcoa's \$56,000,000 self-bond approved by Order dated February 7, 2012, is sufficient to cover the cost of reclamation. The revisions to the approved permit do not appear to constitute significant departures from the method of conduct of reclamation operations contemplated in Permit No. 1F, in accordance with §12.226. Alcoa has provided the information necessary in Revision No. 31 to demonstrate compliance with §§12.226, 12.142(2)(C), 12.145(b)(2), 12.304, and 12.307. Based on my technical review, we recommend approval of Revision No. 31, including revised bond maps, Drawing No. 145-B1, *North Area Proposed Bond Map*, and Drawing No. 145-B2, *South Area Proposed Bond Map*, dated revised May 23, 2012.



Israr Anwar, P.E.

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Xiaoyan Dai Ph.D.



Travis L. Wootton



Alcoa Primary Metals

Energy Division-Sandow Mine
3990 John D. Harper Road
PO Box 1491
Rockdale, TX 76567-1491 USA

June 1, 2012

Mr. John E. Caudle, P.E., Director
Surface Mining and Reclamation Division
Railroad Commission of Texas
P.O. Box 12967
Austin, Texas 78711-2967

Railroad Commission
of Texas
RECEIVED

JUN 07 2012

**Re: Sandow Permit 1F
Revision No. 31
Proposed Bond Map Revision
File Reference No. 1212507**

Surface Mining Division

Dear Mr. Caudle:

Alcoa Inc, Sandow Mine received your letter dated may 25, 2012 regarding our submittal of revised bond maps for the Sandow Mine. Alcoa has reviewed the areas noted in your letter and made appropriate revisions to correct mapping errors that were found during this review process. Alcoa provides with this response, revised Drawings 145-B3 and B4 that show the bond change categories as requested. These maps show all areas proposed to change from the approved bond map, including those granted various phases of bond release granted since the approval of Revision 17, as well as those areas that have modifications to the bonding rates or categories. Also provided with this response are two drawings, noted as 145-B1 and 145-B2, which show the same bonding information without noting the changes referenced above. These maps show only the appropriate bonding level for each category (mined or disturbed) and the various phases of bond release previously approved by the Commission. Alcoa has also updated the estimated bond calculation based on the changes that occurred as a result of this review, with an estimated bond amount of \$45,818,746 required to cover the final reclamation activities of Sandow, inclusive of the 10% administrative fee. Alcoa does not request a revision to the approved bond instrument of \$56,000,000 at this time. All drawings referenced in this response are provided in electronic format as well as the bond calculations. Should you have any additional questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink that reads 'Tommy E. Hodges'. The signature is fluid and cursive, with the first and last names being more prominent.

Tommy E. Hodges, P.E.
Energy Manager

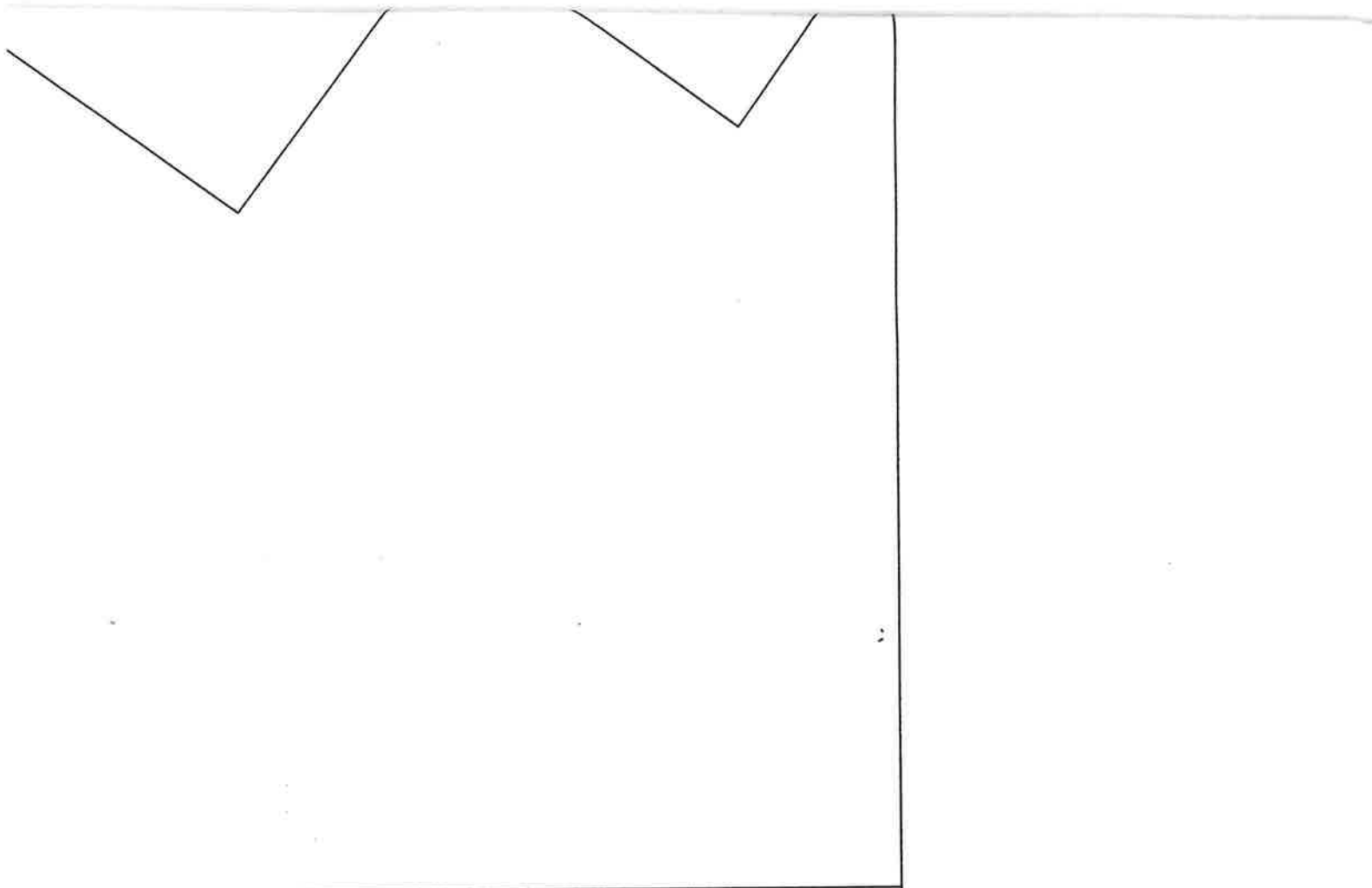
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OND MAP

OND MAPS

DWG. NO.

145-B1



OW MINE
DALE, TEXAS

PROPOSED BOND MAP
MIT NO. 1F

coa Inc.

NO. 2 PROPOSED BOND MAPS

DWG. NO. 145-B2

MINED RATE

DISTURBED RATE

RATE

STURBED RATE

STURBED RATE

RATE

DISTURBED RATE

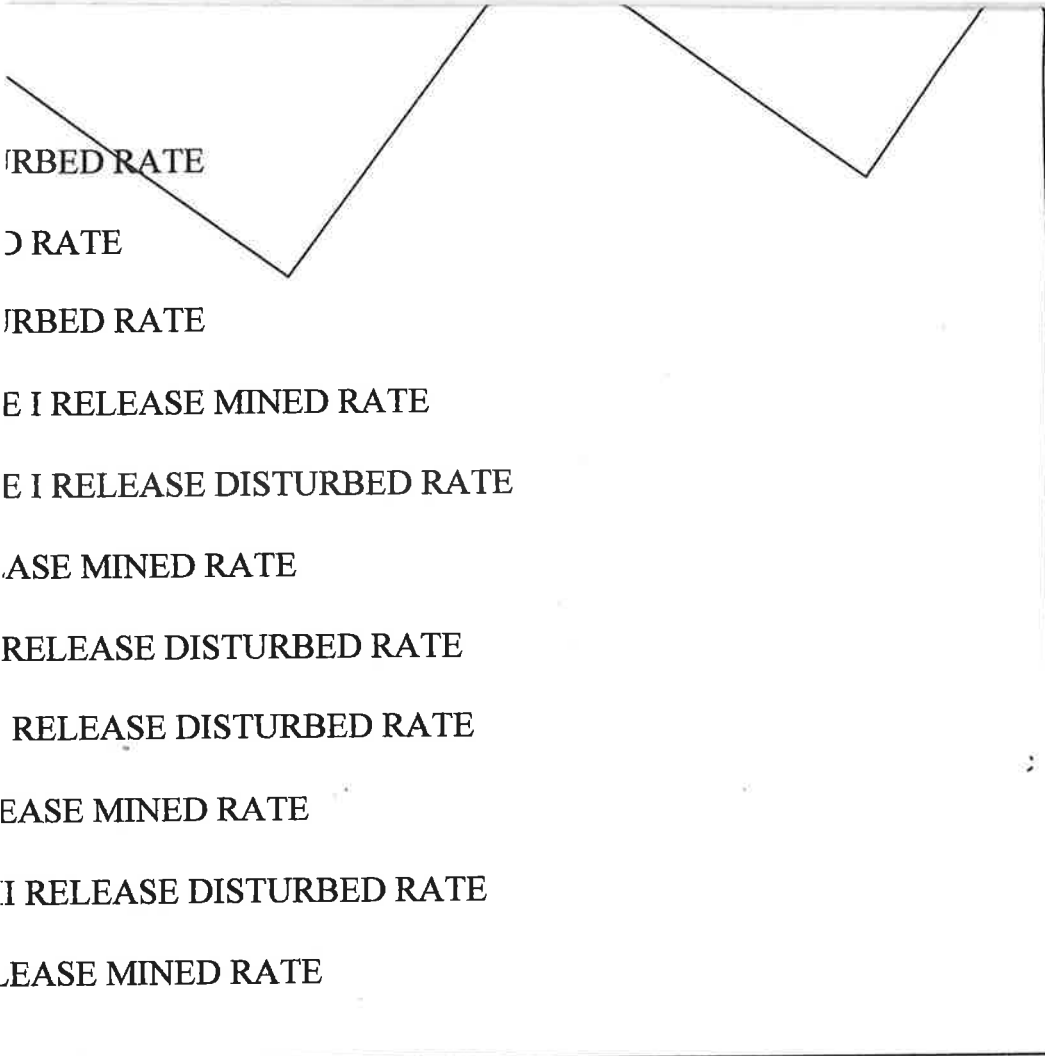
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BOND MAP

D BOND MAPS

DWG. NO. 145-B3



OW MINE
DALE, TEXAS

PROPOSED BOND MAP
MIT NO. 1F

lcoa Inc.

NO. 12 PROPOSED BOND MAPS	DWG. NO. 145-B4
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RAILROAD COMMISSION OF TEXAS

SURFACE MINING AND RECLAMATION DIVISION

May 25, 2012

Sent by Email and First-Class Mail

Mr. Tommy Hodges, P.E.
Energy Manager
Alcoa Inc.
P. O. Box 1491
Rockdale, Texas 76567

RE: Sandow Mine, Permit No. 1F
Revision No. 31
Proposed Bond Maps Revision

Dear Mr. Hodges:

Initial review of Alcoa's May 4, 2012, request for approval of Revision No. 31, which includes revised bond maps (Drawing No. 145-B3, *North Area Proposed Bond Map*, and 145-B4, *South Area Proposed Bond Map*, dated revised May 4, 2012) and a reclamation cost estimate revision for Permit No. 1F is complete. Alcoa indicates that a disturbed portion of the H-Area was inadvertently considered as undisturbed and removed from bonding on the bond maps in Revision No. 17 approved administratively by letter dated August 22, 2011. You submitted Revision No. 31 to correct this error. A \$500 revision-application filing fee was included with this submittal. The attached comment resulted from our review of the application.

In accordance with Chapter 134 of the TEXAS NATURAL RESOURCES CODE, Section 134.085(g) (enacted under Senate Bill 1478, effective May 27, 2011), the deadline for Staff's review of Revision No. 31 is August 2, 2012, 90 days after receipt of the complete application. I have determined that the application is deficient, as described in the attached comment. Upon receipt of your responses, we will have 69 days to complete our review of the application.

Please respond to this comment within 30 days of receipt of this letter to facilitate completion of our review. If you have any questions, please do not hesitate to call me or Mr. Israr Anwar, the Staff member responsible for coordinating review of this submittal.

Sincerely,

A handwritten signature in black ink that reads "John E. Caudle".

John E. Caudle, Director
Surface Mining and Reclamation Division

JEC/IA/flj
Attachment
File Ref. No. 1212507

Alcoa Inc. (Alcoa)
Sandow Mine, Permit No. 1F
Revision No. 31
Proposed Bond Maps Revision
Staff Comments, May 25, 2012

1. Alcoa indicates that a disturbed portion of the H-Area was inadvertently considered as undisturbed and removed from the approved bond maps. Comparison of the approved bond maps (Revision No. 17, approved administratively by letter dated August 22, 2011) and the proposed revised bond maps (Drawing Nos. 145-B3 and B4) revealed several areas, in addition to the correction in the H-Area, that are either being added or removed from the bonded area. These areas are described in the following table:

Mine Area	Approximate Coordinates		Description
	N	E	
AX	334541	3032380	From No Bond to Disturbed
AX	335381	3033109	From No Bond to Disturbed
AX and A	337294	3035835	From No Bond to Disturbed
C	343802	3043711	From No Bond to Disturbed
C	345384	3044339	From No Bond to Disturbed
E	356861	3045592	From Disturbed to No Bond
D and E	355609	3038814	From Disturbed to No Bond
D	354694	3038062	From Mined to No Bond
D	353749	3037993	From Mined to No Bond
D	352874	3037847	From Mined to No Bond
F/G	315284	3020318	From No Bond to Disturbed
F/G	317012	3015801	From No Bond To Mined
F/G and F	319367	3022210	From No Bond to Disturbed

Alcoa must provide a bond change map to facilitate field verification of the proposed changes.



Alcoa Primary Metals

Energy Division-Sandow Mine
3990 John D. Harper Road
PO Box 1491
Rockdale, TX 76567-1491 USA

May 4, 2012

Mr. John E. Caudle, P.E., Director
Surface Mining and Reclamation Division
Railroad Commission of Texas
P.O. Box 12967
Austin, Texas 78711-2967

Railroad Commission
of Texas

RECEIVED

MAY 04 2012

Surface Mining Division

**Re: Sandow Permit 1F
Priority of Alcoa Inc. Sandow Mine Permit 1F Submittals**

Dear Mr. Caudle:

As of today, May 4, 2012, Alcoa has submitted eight (8) permit revisions, applications or reports for consideration and action by RCT staff. Due to the interdependent nature of these submittals Alcoa believes that it is essential that staff consider and approve them in the specific order indicated below to insure that such approvals complement and not conflict each other.

- 1 Revision 31 Proposed Bond Map Revision
- 2 Revision 29 1.67 Acre Incidental Boundary Revision
- 3 Revision 30
- 4 Bond Release Package 4,207.9 Acre Bond Release Application
- 5 LTGM and PHC Report and Application
- 6 2011 Annual Underburden Pumping Report
- 7 2012 1st Quarter Groundwater Monitoring Report
- 8 2012 1st Quarter Monthly Groundwater GCD Reports

Should you have any questions, please do not hesitate to contact me.

Respectfully,

A handwritten signature in blue ink that reads "Tommy E. Hodges".

Tommy E. Hodges, P.E.
Alcoa Inc. Sandow Mine
Energy Manager



Alcoa Primary Metals

Energy Division-Sandow Mine
3990 John D. Harper Road
PO Box 1491
Rockdale, TX 76567-1491 USA

May 4, 2012

Mr. John E. Caudle, P.E., Director
Surface Mining and Reclamation Division
Railroad Commission of Texas
P.O. Box 12967
Austin, Texas 78711-2967

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Railroad Commission
of Texas
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MAY 04 2012

Surface Mining Division

**Re: Sandow Permit 1F
Revision No. 31
Proposed Bond Map Revision**

Dear Mr. Caudle:

Alcoa Inc, Sandow Mine recently discovered an error in the approved Sandow Bond Maps. The current maps were approved by RCT letter dated August 22, 2011. Alcoa discovered the error while reviewing questions related to pending Revision 30. Due to a mapping error, a portion of the H-Area of Sandow was inadvertently shown with a proposed change from disturbed rate bonding to no bonding. The area encompasses the location of the former spoils from the Walleye Creek Reroute and Sedimentation Pond 020. This area was also omitted from the calculated bonding amount.

Alcoa has revised the bond map to once again include this area as disturbed and re-calculated the required bonding based on current approved Phase I, II and III release areas, and has also included the pending Revision 29 Incidental Boundary Revision areas on the maps and calculations. Based on these revisions, Alcoa calculated a required bond amount of \$45,815,261, which incorporates the equipment rates provided by RCT staff in January of this year. Alcoa currently has an approved bond instrument in the amount of \$56,000,000. Alcoa does not request a reduction in the approved instrument with this submittal.

Provided with this letter are copies of the approved bond map, which omitted the H-Area described above, the new proposed bond maps, the revised bond calculations and the equipment rates used in the calculations. Alcoa considers this a revision and provides with this submittal a voucher in the amount of \$500 to cover the review.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Tommy E. Hodges".

Tommy E. Hodges, P.E.
Energy Manager

WORK CATEGORY
 Overburden Spoil Leveling
 Soil Preparation
 Revegetation
 Maintenance

COST PER ACRE (\$/ac)	
	\$5,102
	\$225
	\$266
	\$330
Total	\$5,923

Bonded Acres	Total Cost	Bonded Acres	Total Cost	Bonded Acres	Total Cost
Mined Acres		Phase I	Rate	Phase II	P-40

WORK CATEGORY
 Disturbed Area Leveling
 Soil Preparation
 Revegetation
 Maintenance

	\$2,643
	\$225
	\$266
	\$330
Total	\$3,463 total

Phase II Rate Factor 0.2

Disturbed Acres	Phase I	Rate	Phase II	Rate
2,172.58	\$1,573,908	306.60	\$1,385.25	\$456,712.22
			9.51	\$692.62
				\$6,587

WORK CATEGORY
 Soil Preparation
 Revegetation
 Maintenance

	\$225
	\$266
	\$330
Total	\$820

0

Total Estimated Cost
 Admin Fee (10%)
Total Bond Estimate

\$41,650,238
 \$4,165,023.76
 \$45,815,261

Current Approved Bond
 Total Bonded Acres, All Phases
 Total Permitted Acres

\$56,000,000.00
 10,508
 10,728.60

Overburden Spoil Levelling

D9R with U-Blade
 14M Motor Grader
 14M Motor Grader w/ Ripper

Quantity	Unit	Unit Cost	Total Cost
23.7	hrs/ac	\$209	\$4,953
0.6	hrs/ac	\$103	\$62
0.8	hrs/ac	\$109	\$87
Subtotal			\$5,102

Disturbed Area Levelling

631G Scraper
 D9R
 8,000 gal. Water Truck
 14M Motor Grader
 14M Motor Grader w/ Ripper

7.3	hrs/ac	\$230	\$1,679
2.9	hrs/ac	\$209	\$606
1.2	hrs/ac	\$174	\$209
0.6	hrs/ac	\$103	\$62
0.8	hrs/ac	\$109	\$87
Subtotal			\$2,643

Soil Preparation

Postmine Revegetated Areas Percentage
 Initial Fertilizer Application to all Areas (18-18-18)
 Fertilizer Cost
 Number of Fertilizer Applications
 Fertilizer Application Cost
 One-Time Lime Application
 Lime Cost
 Offset Disk to Incorporate Lime
 Offset Disk Cost
 Tandem Disk for Final Seedbed Preparation
 Tandem Disk Cost

94.70%			
288	lbs/ac		
	\$/lb	\$0.201	\$55
1			
	\$/ac/appl	\$4	\$4
5	tons/ac		
		\$23	\$109
0.5	hrs/ac		
		\$60	\$28
0.5	hrs/ac		
		\$60	\$28
Subtotal			\$225

Revegetation**Temporary Cover Crop In All Areas**

Percentage of Revegetated Area Planted to Temporary Cover Crop (Wheat and Bluestem)
 Cover Crop Cost
 Tractor w/ Grain Drill for Cover Crop Cost
 Tractor w/ Grain Drill for Cover Crop
 Tandem Disk Cost
 Percentage of Area Mulched
 Mulch and Tack Cost

42.40%			
	\$/ac	\$14	\$6
	\$/ac	\$18	\$8
0.5	hrs/ac		
		\$60	\$13
42.30%			
	\$/ac	\$200	\$85

Permanent Crop (bermuda grass)

Percentage of postmine Area Sprigged
 Planting Factor
 Coastal Bermuda Crop Cost
 Tractor w/ Sprigger Cost
 Fertilizer Applied After Establishment to Sprigged/Grassed Areas (46-0-0)
 Fertilizer Cost
 Number of Fertilizer Application
 Fertilizer Application Cost
 Number of Mowings
 Mowing Cost
 Clover Seed Cost
 Broadcast Application of Clover Seed

70.50%			
1.2			
	\$/ac	\$24	\$20
	\$/ac	\$36	\$30
130	lbs/ac		
	\$/lb	\$0.191	\$18
1			
	\$/ac/appl	\$4	\$3
2			
	\$/ac	\$18	\$25
	\$/ac	\$9	\$6
	\$/ac	\$4	\$3

Permanent Crop (Trees and Shrubs)

Percentage of Postmine Area to Trees and Shrubs
 Planting Factor
 Cost of Grass Crop (Brown top millet)
 Cost of Tractor w/ Grain Drill for Grass Crop
 Trees and Shrubs Cost

24.20%			
1.2			
	\$/ac	\$26	\$8
	\$/ac	\$18	\$4
	\$/ac	\$85	\$25

Initial Soil Testing

Percentage of Postmine Area to be Tested
 Test Cost (\$/20 ac grid)

94.70%			
	\$/20 ac grid	\$267	\$13
Subtotal			\$266

Maintenance 2nd thru 5th years**All Areas**

Postmine Revegetated Area Percentage
 10% Soil Texting (\$/ac)
 Soil Texting (\$/ac)
 Number of Weed Control Applications
 Chemical Weed Control Cost

94.70%			
	\$/ac	\$1.25	\$1
	\$/ac	\$2.70	\$3
3			
	\$/ac	\$10	\$28

Permanent Crop (bermuda grass)

Percentage of Postmine Area Sprigged
 Annual Fertilizer Application (288 lb of 18-18-18)
 Number of Years of Maintenance
 Fertilizer Cost
 Number of Fertilizer Applications
 Fertilizer Application Cost
 Number of Mowings
 Mowing Cost
 Amount of grass to be baled
 Baling cost

70.50%			
288	lbs/ac		
4			
	\$/lb	\$0.201	\$163
4			
	\$/ac/appl	\$4	\$11
4			
	\$/ac	\$18	\$51
4			
	\$/ac	\$24	\$68

Percentage of Postmine Area to Trees and Shrubs
 Annual Fertilizer Application to Wooded Areas
 Fertilizer Cost
 Number of Fertilizer Applications
 Fertilizer application Cost

24.20%			
79	lbs/ac		
	\$/lb	\$0.201	\$4
1			
	\$/ac/appl	\$4	\$1
Subtotal			\$330

SANDOW MINE

ROCKDALE, TEXAS

AREA PROPOSED APPROVED MAP
PERMIT NO. 1F

Alcoa Inc.

010	FILE NO. 2010 PROPOSED BOND MAPS REV2	DWG. NO. 145-B4
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NDOW MINE

ROCKDALE, TEXAS

AREA PROPOSED BOND MAP

PERMIT NO. 1F

Alcoa Inc.

FILE NO.

2012 PROPOSED BOND MAPS

DWG. NO.

145-B3

SANDOW MINE

ROCKDALE, TEXAS

SOUTH AREA PROPOSED BOND MAP

PERMIT NO. 1F

Alcoa Inc.

2012

FILE NO.

2012 PROPOSED BOND MAPS

DWG. NO.

145-B4

NDOW MINE

ROCKDALE, TEXAS

REA APPROVED BOND MAP

PERMIT NO. 1F

Alcoa Inc.

FILE NO.
2010 PROPOSED BOND MAPS REV2

DWG. NO.
145-B3